PRR

HIGHER EDUCATION

MONTHLY PUBLICATION OF THE U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Office of Education, Higher Education Division

VOL. X, NO. 4 WASHINGTON, D. C. DECEMBER 1953

Music Education

BY ROBERT A. CHOATE *

MOST COLLEGES AND UNIVERSITIES in the United States offer education in music, much of it characterized by high standards of excellence. Orchestras, bands, choruses, a cappella choirs, operatic and chamber groups—all are commonly found in the United States college or university. Intensive training for a professional career in music is readily available in the college or conservatory. Advanced studies in theory, history of music, and composition are found in numerous graduate schools. Thousands of teachers and supervisors are trained annually to meet the demands of a broad music program in public and private schools and colleges. The church musician finds an ever-increasing provision for his preparation in many institutions. These extensive music activities have focused attention on universities and colleges as the providers of leadership in the field of music.

The Music Profession

A sizable number of persons are engaged in the music profession. (See table 1.) From the data available it appears that the profession as a whole has not been growing rapidly in recent decades. However, certain segments in the field of music, notably music education from preschool through college and university, have grown appreciably within the last quarter century.

The variety of opportunities for performing musicians is great, but the number of musicians who can subsist on earnings from music is comparatively small. Symphony orchestras and a few ballet and opera companies provide employment for instrumental musicians who supplement their incomes by occasional work in musical comedy, operettas, or other musical shows. Radio and television orchestras offer limited employment. The growth of good orchestras in smaller cities throughout the country has afforded new opportunities but not sufficient, as a rule, to do away with the need for supplemental employment from teaching or other professional work. Many musicians find semipermanent work in dance bands and orchestras. The opportunities in the concert field or operatic stage are extremely limited despite the number of singers who aspire to such careers. An expansion of these opportunities has been provided through television.

Churches employ a large number of organists, choirmasters, and singers. The minister of music found in many churches is a well-trained musician

*Dean, College of Music, Boston University. Dr. Choate is chairman of the Editorial Board of the *Music Educators Journal*. He has been director of music education in a number of public school systems, including those of Spokane, Wash., Oakland, Calif., and Evanston, Ill., and he has also served as chairman of the Department of Music Education, School of Music, Northwestern University.

IN THIS ISSUE

	Page
Music Education	53
The "Three-Two Plan"	61
State Science Fair	64
Hawaii Race Relations Conference	64
Osteopathic Education	65
Fellowships for Eastern Study	70
Cost of Nursing Education	70
New Publications	71

280405—53——1

and, in many southern and western cities particularly, receives an excellent salary.

Conducting offers a limited field of opportunity to a highly specialized group. In former years, conductors for major musical organizations were secured from abroad. At present numerous important conducting posts are held by men who received their training in this country.

Table 1.—Number of musicians and music teachers in the United States reported by the Decennial Census, 1870–1950

Year	Number	Year	Number	Year	Number
1870	16,170	1900	92,174	1930	165,128
1880	30,477	1910	139,310	1940	161,536
1890	62,155	1920	130,265	1950	161,307

Source: Bureau of the Census.

Composition, writing and arranging for radio, television, movies, recording, arranging for dance bands or for school bands and orchestras, newspaper criticism, the music librarian, music publishing, music merchandising, and music therapy are various areas of the profession for which an education in music may prepare.

The Teacher of Music

The virtuoso whose interest is primarily in performing and the training of performers is attracted to a music school or conservatory or to the establishment of his own private studio—or both. The performing artist in his later years generally turns to teaching as a means of livelihood or continued professional interest. As a sideline, many symphony musicians, artists, school teachers, and church musicians supplement their income by establishment of a private studio.

Doubtless the greatest number of vocational opportunities for the musician exist in teaching. The added compensations of income certainty, domestic stability, retirement benefits, and desirable environment have greatly increased the stature of this professional activity during the past 30 years. Since music is commonly accepted as an integral part of the child's education, teacher demand pyramids similarly to that of school enrollments. Thus, the greatest opportunity lies in the elementary school, and diminishes toward the college level. Conversely, increased preparation of the teacher, particularly at the advanced graduate level, tends to invert the pyramid of supply, creating a surplus of teachers aspiring for positions in higher education.

State departments of education require the public school music teacher to prepare himself in educational philosophy, teaching processes, and growth and development of the child, as well as in his musical art. Private schools generally are not held to such certification requirements. The baccalaureate is commonly required with course stipulation for a teaching certificate, although many States issue temporary certificates involving lower requirements.

Advanced degrees are usually necessary for obtaining administrative positions or instructing academic and theoretical courses at the college level. In applied areas, professional proficiency and successful experience remain as principal criteria for employment. Certain State institutions, however, because of the necessity for standardization of procedures for determining faculty promotion, salary schedules, and tenure by State legislation, have established advanced study and degrees as objective criteria.

Organizations of Musicians; Publications

The growth of the profession of music, particularly those segments which concern higher education, is indicated by the coincident rise of professional organizations and the literature of the profession. Earliest of such organizations was the Music Teachers National Association (MTNA), founded in 1876. The MTNA holds annual meetings and is concerned with problems related to the private music teacher, music in schools and colleges, community music, and research in numerous fields. It has exerted considerable influence in music teaching through its permanent committee organizations. The proceedings furnish invaluable records of the musical development in the country. *American Music Teacher* is issued five times annually.

The Music Educators National Conference (MENC), founded in 1907 as the Music Supervisors National Conference, has afforded leadership in the development and formulation of music instruction in the public schools and colleges of the United States. The Conference functions as a national organization with 6 divisions, 47 affiliated State units, and several auxiliary and associated organizations. National and divisional conventions are held biennially in alternate years. State units hold at least one annual meeting. The growth of the Conference has been rapid, consisting at present of almost 25,000 members, and its influence has been notable in setting

instructional patterns, raising the standards for music instruction, establishing adequate equipment standards, defining methods of credit for music study, advancing instrument study, correlating school and college programs, and promoting interest in community music as well as international relations and understanding through music. The *Music Educators Journal* is issued 6 times yearly. Until 1940 yearbooks were published. The first issue of the *Journal of Research in Music Education* was released in the spring of 1953. Serving as the Department of Music Education of the National Education Association, the Conference maintains an office in Washington, D. C., as well as its national headquarters in Chicago.

The American Musicological Society (AMS) is an organization for the advancement of research in the various fields of music. Organized in 1934, the society is divided into regional chapters which hold regular meetings at which papers of musicological interest are read. The *Journal of the American Musicological Society* is published regularly.

The National Association for Teachers of Singing (NATS), founded in 1944, has contributed significantly in helping to guide curriculum developments in vocal instruction. Especially of benefit is the clarification of fundamental aims and procedures in voice training, establishment of codes of ethics, and the compilation of teaching literature of a high quality. NATS sponsors national and sectional meetings and summer workshops.

The National Association for Music Therapy (NAMT) was organized in 1950 to coordinate the wide activities and research in this vital area. Publications are issued by the Association.

Although not as closely associated with the colleges as the above-named organizations, the American Guild of Organists exerts a great influence in musical standards and accomplishments of organists in the United States. Examinations covering performance and general knowledge of music are given for the certificates of associate (AAGO), and fellow (FAGO). The guild is subdivided into numerous chapters which meet regularly and administer examinations. The *Diapason* serves as the official magazine for the guild.

As a result of the first International Conference on Music Education, which was held in Brussels, Belgium, in midsummer 1953, an International Society of Music Education was formed. This organization has as its aims the exchange of philosophies, objectives, and materials in music teaching, the furtherance of understandings and relationships through music, and the projection of further international conferences.

Development of Music in Higher Education

Music was relatively late in entering the curriculum of the American college. Although there are numerous records of musical activity in early colleges, the first professorship announced in music was in Oberlin College in 1835—a "Professorship of Sacred Music." The Harvard Musical Association was established in 1837, although the Pierian Sodality (which still flourishes at Harvard) was founded as early as 1808. The first recorded bachelor's degree in music was that given by Boston University in 1876. The gap of 200 years from the founding of Harvard College (1636) to the earliest recognition of music in higher education is understandable when colonial living conditions and the Old World influences on American education are considered. There was little place for music in these first institutions which were largely prototypes of English or continental schools concerned with training men for the learned professions or the ministry.

The numerous forces affecting higher education, however, predestined its institutions to a characteristically different role both in scope and influence. Among these forces were the pioneers of musical education and the societies dedicated to its future. After 1870, music professorships and departments of music were established in several of the leading colleges, and numerous conservatories were founded. From 1870 to the present, establishment of university schools of music has been nationwide. Music departments constitute an integral division of the liberal arts college, and noted musicians have been appointed to professional chairs, indicating the recognition of music instruction.

A coordinate development in the early years of this century was the attention given to teacher preparation in the field of music. Although music instruction had begun in the public schools of Boston as early as 1838 and had spread rapidly to other cities throughout the United States, training of the music teacher was supplied by conventions and institutes sponsored largely by various book-publishing concerns. These companies contributed significantly to the remarkable growth of early music and supplied training not to be found in the college of that day. As the public school music program expanded, the need for increased emphasis on

teacher training and the responsibility for assuming leadership in this vital area became evident. Courses in music pedagogy, methods, and materials were added to the college curriculum, and teacher training departments were organized.

In the present century, music has risen steadily to a place of equal status with other subjects in the liberal arts curriculum. Most of the 1,400 or more colleges accredit courses in music, and adequate recognition is given in both undergraduate and graduate degrees.

Surveys and Studies

The status and progress of education in music has been the subject of several studies and surveys. One of the earliest of these was made by Rose Yont in 1916 and reported as *The Status and Value of Music in Education.*[1] It described the development of music in the public schools, normal schools, universities and colleges, and extension work.

A bulletin entitled *Present Status of Music Instruction in Colleges and High Schools, 1919–20* was published by the U. S. Bureau of Education in 1921. The study was made by a joint committee of three educational organizations. It reported that 247 colleges and universities allowed some credit in music toward the academic degree, 87 of them allowing more than 20 semester hours of such credit.

Owing to the great concern which developed over college entrance credits, the Research Council of the Music Supervisors National Conference made an investigation which was reported in 1930 as the *Survey of College Entrance Credits and College Courses in Music.*[2] It presented a considerable amount of information on the offerings in music in the institutions of higher education.

A study of music in 30 colleges and universities was made possible in 1932 through a grant from the Carnegie Corporation. This investigation for the Association of American Colleges led to the report, *College Music*, prepared in 1935 by Randall Thompson, director of the study.[3]

Association of Music Schools

The National Association of Schools of Music (NASM) consisting of schools of collegiate grade was formed in 1924 to encourage closer relationships among schools of music and to establish programs of cooperation with various educational associations which directly or indirectly affected the cause of music. Annual meetings are held for the official representatives of the association. As of December 1952 the Association had 179 full members, 23 associate members, 8 junior college members, and 1 preparatory school member.

Accreditation

Since the National Association of Schools of Music was formed, it has served as the principal accrediting agency for schools of music and a limited number of junior colleges and preparatory schools. With a membership of over 200 schools, the NASM maintains high professional standards through its accrediting and annual evaluation, has established a code of ethics, and suggests minimum curriculums for undergraduate and graduate degrees. Criteria used in determining eligibility for membership relate to equipment, faculty, organization, student body, curriculum, and actual teaching results.

Regardless of the flexible standards of the National Association of Schools of Music, departments of music associated with teachers colleges have encountered considerable difficulty in music accreditation. The American Association of Colleges for Teacher Education (AACTE) has maintained a working relationship with the NASM. Within the past several years a cooperative committee of the NASM, AACTE, and the Music Educators National Conference have jointly presented new standards and schedules for evaluation of the music education curriculums. These standards have given a balanced emphasis to adequate, attainable, and desirable accomplishments in music areas, as well as in the liberal arts and professional education areas. Recently the National Council for Accreditation of Teacher Education has been formed, representing the principal interests in teacher education. It is expected to assume the accrediting functions now being performed by the AACTE.

Schools and Enrollments

In the school year 1951–52, 648 institutions of higher education in the United States conferred earned degrees in music. Such degrees are offered in four types of institutions.

1. *Professional schools or conservatories.*—Professional schools of music or conservatories offer extensive work embracing a considerable variety of courses, undergraduate and graduate. Inasmuch as most

[1] Published by the Woodruff Press, Lincoln, Nebr., 1916.
[2] Published by the National Bureau for the Advancement of Music, New York, N. Y., 1930.
[3] Published by the Macmillan Company, New York, 1935.

such schools are parts of major universities or colleges, there is also provision for a concentration in music by the liberal arts student who wishes to receive the bachelor of arts degree. In most schools a master's degree program is available. Schools representative of this type are: Yale University, Oberlin College, University of Illinois, University of Michigan, Boston University, Northwestern University, and University of Rochester (Eastman School of Music). Conservatories offering varied courses are: Juilliard School of Music, Chicago Conservatory, Cincinnati Conservatory of Music, and the New England Conservatory of Music.

2. *School of fine arts.*—A department or division of music in a college or department of fine arts offers opportunities for professional concentration in most major curriculums in music. Such organizations are found at the State University of Iowa, Drake University, University of Kansas, Carnegie Institute of Technology, to name but a few. The professional degree or the bachelor of fine arts may be conferred.

3. *Teachers college.*—The teachers college offers specialization in music with concentration in pedagogical and educational concepts as well as in applied areas. Academic requirements are heavy, and in many States a fifth year is being added to the program for added depth and background. State colleges in New York, Illinois, and California are typical.

Table 2.—Enrollment in professional music courses in selected years from 1931 through 1944

Year	Undergraduate		Graduate		Total
	Men	Women	Men	Women	
1931–32	1,628	4,401	79	83	6,191
1933–34	2,527	6,927	105	118	9,677
1935–36	4,056	7,922	148	179	12,305
1939–40	4,770	8,279	365	430	13,844
1941–42	3,907	7,967	300	363	12,537
1943–44	1,166	7,008	150	344	8,668

Source: Data compiled from Reports of the United States Office of Education. Data have not been collected since 1944.

4. *Liberal arts college.*—Departments of music in liberal arts colleges offer the diversified curriculums of the professional school, but generally with fewer hours of music credit and a greater number of liberal arts courses. Most have developed a fairly extensive range of subjects in music history, theory, and applied music leading to degrees. More than 80 percent of degrees in music are conferred by schools of this type. Only a few of these schools can be indicated: Brown University, University of California, Cornell University, Hunter College, Occidental College, New York University, Wellesley College.

Data on enrollments in schools and departments of music are incomplete; such data as are available for recent years are shown in table 2.

Admission Requirements

Students normally may enter the professional music school or college directly from high school. Academic requirements for admission usually stipulate graduation from an accredited high school or its equivalent. A minimum of 15 credits is assumed, and the National Association of Schools of Music recommends that these include 3 units of English, 2 in foreign language, 1 in mathematics, 1 in science or history, and 8 in elective subjects. The remaining 3 units may be in music or other subjects accepted for graduation by the high school.

A knowledge of elementary theory in music sufficient for admission to the first-year theory courses is desirable, and entrance requirements in applied music have been recommended by the National Association of Schools of Music. Although other entrance requirements are not uniform, many schools require character references, scholastic profile, audition, psychological and aptitude tests, and health records. Some schools require music aptitude and achievement tests, although the latter are used chiefly for course sectioning or establishing advanced standing. With the commendable expansion of the secondary school course to include theoretical subjects in music and the increase in preparatory departments, the student is sometimes proficient enough to proceed immediately to advanced courses. The same is true in applied music.

Admission to advanced standing for work taken in other colleges is permitted throughout the country. Difficulties arise in such transfers particularly in entrance to an accredited school from one that is not accredited. Even within membership of the NASM, no school is obliged to accept without examination the music credits from another institution. In applied music, advanced standing may be given tentatively after examination, in transfer cases, but such standing must be confirmed by advanced study in residence in the same field. In academic and theoretical subjects, substantiation examinations generally are given for work taken in nonaccredited

institutions to insure knowledge of subject matter basic to the curriculum.

Professional Curriculum and Degrees

In earlier years, courses in music were largely theoretical and historical. Such courses were considered a part of a cultural education, disciplines suitable for higher learning. Instruction in practical music was considered outside the province of the college. Extracurricular activities provided some music instruction; most of the colleges offered very few courses. In the late 19th century, as the number of colleges increased and the changing philosophy allowed electives and enrichment subjects, music courses became more numerous, and gradually the music major was established.

Most curriculums in music consist of a balanced selection of courses from the following areas: liberal arts courses, music history and literature, theory and composition, practical or applied music, and professional training courses (education, techniques, pedagogy, materials). Academic credit toward degrees may or may not be given for choruses, choirs, orchestras, opera classes, bands, and ensembles. The selection of courses from these 5 areas to form a course of study depends on the desired career, degree sought, or the type of school offering the course.

Various professional courses are offered throughout the country: the major in applied music concentrates in the applied courses in preparation for a professional career as a performer, e. g., concert artist or member of a symphony orchestra. Thorough discipline is gained through basic musicianship, and through theory and literature courses in music, and in most schools there are minimum requirements in liberal arts. The majors in composition, in theory, and in church music are commonly offered with obvious course selections from the major areas. The major in history and literature of music is in many schools a preparatory course for graduate study in musicology; the major in music education provides professional training as a musician and as teacher in schools and colleges with concentrations in vocal or instrumental fields, or both; majors in opera and conducting are offered occasionally; and a recent major instituted by some colleges is that of music therapy.

Most of these professional undergraduate curriculums require 4 years for completion and lead to the professional degrees: bachelor of music, bachelor of music education (or school music), or bachelor of science in music education.

Some current trends evident in the organization and content of undergraduate curriculums are: (1) broadening of all music curriculums to include more of the general culture and background courses, with a compensatory lessening of specialized skill and technique subjects; (2) an understanding of the developmental approach in music teaching with an emphasis upon the attitudes and feeling-tone of the class; (3) increased emphasis on functional aspects of music, including the use of indigenous, folk, and popular music and the use of music in therapy and in special education; and (4) recognition of technological advances, particularly in the utilization of audio-visual resources.

The numbers of earned degrees awarded in music in various recent years are shown in table 3.

Graduate Study Leading to Advanced Degrees

As a discipline compatible with advanced degree tenets, music has emerged much more slowly than its more academic relatives. The graduate school has almost reluctantly given ground in permitting doctoral conferment in music. (See table 3.) It is safe to assume that there are extant at least 450 or 500 doctorates that have been awarded in music or in a related area where music was used as a thesis assignment. An exact figure is difficult to determine because many musicians have written in such fields as psychology, anthropology, and history, to name but a few. On record, 375 theses have been written in the area of music. This number does not take into account the degrees for which dissertations were written outside the music field.

In past years, no less than 65 institutions have cataloged or conferred the doctoral degree, or permitted theses in the area of music. At present, at least 49 schools list the degree or have initiated plans for inclusion of the doctoral curriculum. Of these, at least 37 have conferred the degree and have active programs in force. Presumably, the remaining 12 schools have accepted candidates.

Although other degrees are awarded, the doctor of philosophy is the most commonly sought of the doctoral degrees in music. It probably is also the most widely recognized. The doctorate in education has been cataloged by 18 institutions and normally requires 3 years from the baccalaureate for completion, as does the doctorate in philosophy. Basic differences are found in language requirements and the type of thesis for the two degrees. The curriculum for the doctorate in education normally re-

Table 3.—Earned professional degrees in music in selected years from 1917 through 1952

Year	Bachelor's degrees			Master's and second professional degrees			Doctor's degrees			Total
	Total	Men	Women	Total	Men	Women	Total	Men	Women	
1917–18	230									230
1929–30	1,347									1,347
1931–32	1,168			74			1			1,243
1933–34	1,181			71			3			1,255
1935–36	941			54			11			1,006
1939–40	1,534			368			8			1,910
1941–42	1,405			553			6			1,964
1943–44	1,045			320			8			1,373
1947–48	5,284	1,766	3,518	1,043	631	412	27	22	5	6,354
1948–49	6,662	2,920	3,742	1,469	934	535	30	28	2	8,161
1949–50	7,934	4,069	3,865	1,489	942	547	34	32	2	9,457
1950–51	7,723	3,740	3,983	1,730	1,172	558	48	42	6	9,501
1951–52	7,015	3,056	3,959	1,738	1,145	593	55	51	4	8,808

Source: Data compiled from reports of the Office of Education.

quires more hours in education and fewer in other cognates. The National Association of Schools of Music has made specific recommendations for the doctor of philosophy in music in the areas of musicology, composition, theory, and music education.

Other degrees found more rarely are the doctor of fine arts (D. F. A.), the doctor of sacred music (D. S. M.), and the doctor of music (Mus. Doc.). In 1952, the NASM approved the awarding of the earned doctor of music as a professional degree in music, subject to conditions determined by the Graduate Studies Commission of the association. Before this date, the doctor of music degree in America had been solely an honorary award.

Post-College Education Not Leading to Advanced Degrees

Summer music study has been an integral part of university summer courses since before the turn of the century. Affording advanced study, professional improvement, and study under noted directors and leaders in music, summer terms constitute a major resource for the teacher in particular. Evening colleges and extension courses of most universities afford similar opportunities during the school year—classes in history or enjoyment of music, techniques and methods of teaching, or requested in-service classes for specific groups. Some universities offer radio program study through their broadcasting facilities. Recently experimental television programs have been initiated. With expanding educational television channels, doubtless numerous music programs will be developed for this medium of communication.

Current Problems

Administrative, financial, and professional involvements, conflicting educational philosophies, and the need for constant evaluation create situations in higher education which call for persistent and straightforward consideration by faculties, administrators, and professional organizations.

Students.—There is great need for improvement in the selection of students who prepare for the music profession. Early identification of potential musicians and music teachers is most desirable. A reexamination of scholarship and aptitude testing, audition procedures, and placement examinations—undergraduate and graduate—should be made by the college. There is also need for developing better and more comprehensive student personnel programs in music schools.

The curriculum.—The problems of curriculum content are acute and complex in music. In the college, divergent viewpoints exist concerning the balance in the music curriculum between liberal arts subjects and professional courses, between general and special fields. Within the music profession there are diverse attitudes regarding the balance between the theoretical and historical subjects and the performance areas, between the academic and the applied fields. Others are concerned with the distribution of courses which train for broad musicianship and those which

are prerequisite to a career in music teaching—courses in education and liberal arts required for State certification, in techniques, methods, and materials.

Another concern is that involving the place of music in the program of general education. On the one hand there is an awareness that music schools give limited attention to extra-departmental music activities which could contribute much to general education; on the other hand there is a recognition that because of intense specialization, interdisciplinary relationships and understandings are rarely included in the music curriculum. Music graduates generally are inadequately prepared to function in the program of general education.

Vocational opportunities materially affect the content of many curriculums. Because of employment limitations in the professional music career, many applied curriculums include courses in pedagogy which might assist a teacher in organizing a private studio while establishing a career in performance. The recent appearance of the opera workshop in the college curriculum has afforded opportunities for talented singers to perform operatic roles, study dramatic techniques, and learn a wide range of operatic literature. The vitality of this movement has enlisted support in many areas and gives indication of becoming a dynamic influence in the college and community. Capable directors of such workshops are in great demand.

Expanding enrollment in public schools, together with financial stability and professional stature in the teaching profession, has created an extensive demand for music teachers. Inasmuch as the music program now in effect in many public schools demands a thoroughly trained musician-teacher, college music curriculum planners are becoming aware more than ever of the cultural and educational potential of the teaching profession. Former attitudes of condescension and mere tolerance of the teacher-training program by faculties and administrators are being replaced by understanding and enthusiastic cooperation in the strengthening of the program.

Musicianship.—Development of basic musicianship is a major concern in most schools of music, and rightly will continue to be so. Today the music teacher is required to meet far more exacting standards than in previous years, but the musical accomplishment is currently far from ideal. Many schools are increasing musical attainment through provision for more comprehensive musical instruction and experiences rather than through an increase in courses in teaching methods and technique.

Preparation for college teaching.—The holder of a doctoral degree in music almost invariably finds himself associated with the teaching profession. It is desirable therefore that preparation of the graduate student for his eventual educational service receive particular attention. Some institutions provide courses which are designed to acquaint the graduate student with his role as a college or university instructor, but at present no graduate curriculum professes to include a substantial listing of courses with such design in the area of music.

Research.—Research studies in music are pursued in varying degrees in the institutions of higher education. They are of three types. Some of them are essentially studies in music; they deal with analyzations of formal structure and the history of music and music literature. Unfortunately, opportunities for this type of research in music are too rare in schools in the United States. Other studies arise out of such fields of investigation as anthropology, literature, psychology, and music. Studies of folk music serve as examples.

The recent adoption of graduate degrees in music education is resulting in research studies in that field. Current undertakings are for the most part inquiries concerning practices and extent, with some evaluation.

Music and international relations.—The subject of music and international relations has live interest on every college and university campus in the United States. Practically every college and university has some students or visiting professors from other countries. Whether or not these students or professors are musicians by profession, they can usually bring to campus activities information about, and demonstrations of, music in their countries.

Serious studies are undertaken in courses on music of other countries—Latin America, Africa, Far East, India, etc. What is too often neglected in college and university courses dealing with music and international relations is serious consideration and investigation of the utilization of music as a factor in peace and understanding among peoples of the world.

Selected References

Jeffers, Edmund V. *Music for the General College Student.* New York, King's Crown Press, 1944. 213 p.

Jones, Vincent. *Music Education in the College.* Boston, C. C. Birchard and Co., 1949. 220 p.

Morgan, Hazel N., *ed. Music Education Sourcebook.* Chicago, Music Educators National Conference, 1949. 256 p.

Music Supervisors National Conference, Research Council. *Survey of College Entrance Credits and College Courses in Music.* New York, National Bureau for Advancement in Music, 1930. 209 p.

Thompson, Randall. *College Music:* An Investigation for the Association of American Colleges. New York, The Macmillan Co., 1935. 279 p.

The "Three–Two Plan"—An Educational Experiment

By HENRY H. ARMSBY*

ONE OF THE PROBLEMS which have increasingly engaged the attention of engineering educators, especially during the last few decades, has been the allocation of time in undergraduate engineering education between the two major subdivisions of an engineering curriculum, the liberal and the technical. With the growing tendency of industry to call engineers to managerial and administrative positions, it has become increasingly important that engineering education should include such cultural or liberal education as will enable engineers to be well-rounded men, able to carry their share of the duties of good citizens, and able to understand the social, political, and economic implications of their scientific and engineering activities.

The "Three–Two Plan"

One method of attack on this problem which is gaining in popularity consists of cooperative arrangements between engineering colleges and liberal arts colleges under which students are enabled to pursue combined liberal arts and engineering curriculums. In some cases the two colleges are parts of the same university. The usual pattern, frequently called the "three–two plan," provides that a student attend a liberal arts college for 3 years, taking a program agreed upon between the two institutions, and then attend the engineering school for 2 years. If his work is satisfactorily completed he receives the bachelor of arts degree from the liberal arts college at the end of his fourth college year, and at the end of his fifth year the bachelor of science degree in engineering from the engineering school. The engineering degree is normally based on a 4-year curriculum in engineering.

This article is based chiefly upon statements by officials of engineering schools which are conducting programs of this type. A few of the programs included in the table have been reported in news releases, which make it clear that they operate on similar principles.

Extension of the "Three–Two" Idea

Apparently the earliest organized "three–two plan" was at Case Institute of Technology, which had such a program from 1903 to 1927 in cooperation with Adelbert College. A few other institutions have had programs for several years, but much of the growth in popularity of this type of educational program is recent. In 1950, six engineering colleges were known to be operating such programs. In October 1952, the New York Times reported 13 programs. In May 1953, 16 engineering colleges were identified with such programs. The table accompanying this article lists 25 engineering colleges situated in 11 States which are now cooperating with 120 different liberal arts colleges situated in 32 States in the conduct of 188 "three–two" programs. The apparent discrepancies in numbers are due to the fact that 43 of the liberal arts colleges are cooperating with two, three, or four engineering schools each. Several of the engineering schools are negotiating with additional liberal arts colleges, looking to further expansion of their "three–two" programs.

Enrollments

Few of the statements contain statistical information on enrollments in "three–two" programs. Most of them have been started so recently that no students have yet been graduated. In the past 5 years "three–two" students have constituted approximately 25 percent of all students admitted to the

*Chief for Engineering Education, Division of Higher Education, Office of Education.

280405—53——2

Massachusetts Institute of Technology with advanced standing, numbering 162 in 1952. In 1949, of the students who had started the "three–two" plan in one of the colleges cooperating with MIT, 33 percent actually entered the engineering school. Since then this ratio has steadily declined, and in 1952 it was 14 percent. The MIT official points out, however, that this is probably to be expected. The very fact that a student chooses the combined plan indicates that he is uncertain about engineering. Some find through their college work in mathematics and science that they are not fitted for engineering. Others complete their undergraduate work in the liberal arts college and go on to graduate work in science rather than in engineering.

"Three–two" programs in operation in October 1953

Engineering college	Number of cooperating liberal arts colleges	Number of liberal arts colleges in same State as engineering college	Number of other States in which cooperating liberal arts colleges are situated
California:			
San Jose State College	1	0	1
Stanford University	4	1	3
University of So. Calif.	1	1	1
Idaho: University of Idaho	1	1	0
Illinois: Illinois Institute of Technology	18	7	6
Indiana:			
Notre Dame University	5	2	3
Rose Polytechnic Institute	2	2	0
Valparaiso University	1	1	0
Massachusetts: Massachusetts Institute of Technology	17	2	11
Michigan: University of Michigan	6	6	0
New Hampshire: Dartmouth College	1	1	0
New York:			
Columbia University	39	9	25
New York University	3	3	0
Rensselaer Polytechnic Institute	14	1	9
Union College	1	1	0
Ohio: Case Institute of Technology	10	6	4
Pennsylvania:			
Bucknell University	2	2	0
Carnegie Institute of Technology	21	7	8
Lafayette College	22	3	17
Pennsylvania State College	5	4	1
University of Pennsylvania	7	6	1
University of Pittsburgh	2	2	0
Texas:			
Texas A & M College	1	1	0
Texas Tech. Institute	2	2	0
University of Texas	2	2	0

New York University cooperates with three liberal arts colleges. About 20 students are currently in the liberal arts phase of the program at one college, about 10 or 12 at a second, and the third institution has sent to the engineering school about 80 students in 5 years.

Most of the liberal arts colleges cooperating with Case Institute of Technology have entered the plan since the spring of 1950, and thus far Case has admitted only 8 students under the plan. However, it is expected that the numbers of such students will be quite significant in the near future.

At Carnegie Institute of Technology over the past 7 years from 4 to 6 percent of the student body have been "three–two" students.

Columbia University has 3 seniors in their "three–two" plan, expects about 10 juniors this year, and has about 400 preliminary registrants, among whom they expect a high attrition rate, as has been observed at MIT.

At the University of Michigan about 5 percent of engineering graduates "over a period of years" have been following the "three–two" plan.

How the Plan Operates

The general pattern of the "three–two" program, as set forth in the statements of the engineering school officials, includes no formal contract between the schools concerned, but considerable discussion between their officials leading to an agreement on administrative procedures and on the courses to be offered at the liberal arts college and at the engineering school. The engineering school usually accepts only students recommended by the faculty of the liberal arts college.

Several of the statements mention the desirability of keeping the list of participating institutions small so that engineering college officials can become well acquainted with the cooperating institutions and their staffs.

Administrative details described by institutional officials include such items as the exchange between institutions of the results of aptitude, achievement, and other tests and scholastic records, to aid both institutions in guiding and counseling participating students; the joint preparation of pamphlets and publicity materials by the two institutions; the appointment of a liaison officer by each institution to facilitate the administration of the program; the review during the last half of the third year of the records of students eligible for transfer according to

standards agreed upon by the two institutions; the certification to the engineering college of the names of those students whom the liberal arts college is willing to fully recommend; and conferences of instructional and administrative personnel associated with the program at the two institutions, to develop improved articulation between them.

The Course of Study

A typical statement concerning the course of study reads as follows: "The first three years of study will be carefully designed to include the necessary mathematics, science, and other pre-engineering subjects. Because of the rigorous nature of the engineering curriculum above-average grades must be secured during these years to qualify the student for the later engineering work. In some cases a summer course sometime during the five year period may be needed to complete all requirements." (The summer camp is mentioned by several of the engineering college officials.)

One official included a statement of the requirements established for the first 3 years at the liberal arts college, expressed in terms of comparable courses at his engineering college. He said, "There has been little difficulty among our associates in meeting these requirements, possibly because we are not too insistent on exact equivalents. All we aim for is a program which will permit entering our junior work without handicap to the student." The requirements cover a total of 40 credit hours in chemistry, mathematics, physics, and drawing, and 30 hours in English, economics, history, literature, and psychology. This is followed by specific additional requirements for certain curriculums in the engineering college, and by a list of suggested electives, which include economics, language, government or political science, history, literature, mathematics, philosophy, advanced chemistry, sociology, and statics.

Advantages to the Student

Advantages to the student are pointed out by several of the engineering school officials. The following paragraphs are paraphrased or quoted directly from their statements.

This program permits students to receive liberal and technical education at relatively low cost, and thus helps to provide the commonwealth and the nation with critically needed trained engineers.

The student who is undecided as to the general direction of his future, particularly the boy who is perhaps a little immature for a large institution, might well enter the smaller liberal arts college. If he finds his college mathematics and physics uncongenial, he can shift to a program with less emphasis on science without the need of transferring elsewhere. In general, the student who wishes a taste of life in a smaller college and who is willing to devote 5 years to his undergraduate education may well find the plan suited to his needs.

During the 3 years of study in the liberal arts school, an undergraduate is a member of a group with the same interests and tastes. He is likely to absorb much of its atmosphere as well as to acquire a basic knowledge of mathematics and the sciences. Entering the engineering college as a junior on the semi-professional basis he is able to devote himself primarily to courses which have an immediate bearing on his future as an engineer.

This program provides a planned sequence of courses which guarantees acceptance at an engineering school, an opportunity which might be denied a student of equivalent standing not participating in the program.

Lafayette College, which is sponsored by the Board of Christian Education of the Presbyterian Church, has established "three–two" programs with 22 liberal arts colleges similarly sponsored, making it possible for students to pursue the entire combined curriculum "with the advantages of attending a more personal church-related college."

Student Difficulties

Students in the "three–two" program appear to have no more difficulty in making the adjustment to a new institution than students usually have in transferring from one institution to another.

One official states that the "three–two" students often become leaders in student activities. He says, "Apparently their three years of experience in an environment where there may not have been quite as heavy an academic responsibility, has meant that they get started doing other things besides academic work, and they continue to do so after transfer."

An official in another institution says that "there is a break in student activity. Most students do not carry on with their activities—they feel thay have had their college life and now wish to receive professional training." He believes that the majority of boys with a clear-cut interest in and a bent for engineering or science prefer to enter his school directly from a secondary school. This course of action in

his opinion has many advantages, among them being: (1) saving of time, which is of particular importance to those who expect to do graduate work; (2) the opportunity to enter at once into the purposeful and stimulating professional atmosphere of the engineering college, and (3) the ready availability of guidance for engineering freshmen in the selection of a professional curriculum.

Another official suggests that "the major reason for lack of interest in the plan is the expectation of military service. . . . The ROTC program does not fit in with a five-year college course, and I suspect that draft boards are not very sympathetic to such a program."

Scholastic Success

Few data are available on the scholastic success of "three–two" students. The most complete statement indicates that over a period of 5 years the "three–two" students have earned slightly higher average grades than the institution's regular students have. It is pointed out, however, that these figures should be used cautiously, since the institution accepts only students who are recommended by the cooperating colleges, which frequently demand a dean's list rating with no mark below "B" in mathematics and science. In other words, the "three–two" students are a highly selected group.

Another official states that the scholastic records of "three–two" students in his institution are above the all-student average by about 25 percent. Several other officials state that the "three–two" students do as well as the regular students, or better.

Advantages to the Colleges

Several institutional officials speak of the advantages to the engineering school inherent in this plan. One says in part, "Furthermore, the combined plan provides the engineering school the opportunity to concentrate its effort upon giving an outstanding engineering education to a group of mature, highly selected students who have had full opportunity to determine their choice of career."

Another points out that vacancies caused by attrition in freshman and sophomore engineering classes can be filled by these excellent students. He says further that "we feel there is a beneficial influence brought to our campus by these transfer students, who have had educational and social experiences different from those of our own students."

Two others call attention to the fact that the liberal arts college attracts students it might not otherwise get, and avoids the expense of setting up an engineering curriculum.

General Appraisal of Plan

The expansion which is taking place in the adoption of the "three–two" program indicates rather clearly that this type of program is expected to provide a satisfactory method of attack on the problem of attempting to give in one undergraduate curriculum both a liberal education and an engineering education. The program is gaining favor, both with engineering colleges and with liberal arts colleges. While it is still new enough to be considered as an educational experiment, it holds promise of forming the basis for an effective synthesis of liberal and technical education. The plan evidently offers certain advantages to the liberal arts college, to the engineering college, and above all to the student.

State Science Fair

THE FIRST ANNUAL West Virginia State Science Fair will be held in the Alderson-Broaddus College field house, April 22–24, 1954. The fair will highlight the 1954 gathering of State scientists on the Baptist college campus.

The fair, sponsored by the West Virginia Academy of Science and held in conjunction with its annual meeting, is open to students in all high schools of the State. Exhibits may feature any phase of the biological sciences, physical sciences, or social sciences. The West Virginia Academy is cooperating with the National Science Fair in an effort to set up regional fairs throughout the State.

Hawaii Race Relations Conference

AN INTERNATIONAL CONFERENCE on Race Relations in World Perspective will be held on the Honolulu campus of the University of Hawaii next summer. Sponsored jointly by the Universities of Hawaii, California, and Chicago under grants of the Ford and McInerny Foundations, the conference will run from June 28 to July 23, 1954. It will be attended by authorities on race relations from every area of the world. Open meetings will be held for the benefit of students, and a special seminar to incorporate the conference proceedings is being planned.

Osteopathic Education

By RUSSELL C. McCAUGHAN, D. O.*

OSTEOPATHIC EDUCATION, now some 60 years old, is the means by which about 450 men and women each year complete their training and begin professional service in the United States and elsewhere. The osteopathic profession takes great interest in its colleges and devotes much effort to assisting them in attaining increasingly higher educational standards.

The Osteopathic Profession

Osteopathy is more clearly understood when it is discussed rather than categorically defined. Steadily the profession has assumed its prerogative to grow, develop, and refine its earlier premises. Osteopathy is an unlimited school of medicine with a *unique* philosophy. A basic tenet of osteopathy is that the body is a unit. Though heterogeneous in its cellular, tissue, and organic structure, the human body functions as a unit in *both health and disease*. It is regulated, integrated, and coordinated in its functions principally through its circulatory and neuroendocrine systems. The osteopathic physician considers the patient as a whole and recognizes symptoms as the manifestation of reactions to noxious chemical, physical, environmental, psychological, and biological factors.

Equally basic to the concept of osteopathy is that the body possesses self-regulatory mechanisms which should not be unnecessarily neutralized. Within limits these mechanisms provide for resistance to, and recovery from, injury by noxious factors arising from heredity, nutrition, environment, human activities, and many other determining conditions. Impediments to health which occur in the musculoskeletal system are of special and decisive importance in man and receive emphasis by the osteopathic physician. These are often referred to in modern osteopathy as "somatic components of the disease process."

Osteopathy holds that structure and function are reciprocally always interrelated. This interrelationship provides a basis for the structural assignment of cause of disease and for the technics of manipulative therapy.

The treatment given by the osteopathic physician is based upon the correlation of understanding of the body unity, self-regulatory mechanisms, and the interrelationship of structure and function. The use of surgery, drugs, and other diagnostic and therapeutic modalities by osteopathic physicians and surgeons is based on the balanced judgment of all such factors.

Osteopathy was founded by Andrew Taylor Still, who in 1874 announced the principles on which osteopathy is based. In 1892, Dr. Still opened the first college of osteopathy in Kirksville, Mo.

As of November 1953, there were 11,974 osteopathic physicians in the United States, 123 in Canada, and 85 in other countries. In the United States there was one osteopathic physician per 13,361 of the population.

The great majority of osteopathic physicians are in private practice, but several have full-time positions with hospitals, private industry, the United States Public Health Service, and the Veterans Administration. Nearly 10 percent of the practitioners are women. Most osteopathic physicians engage in general practice, but an increasing number specialize in one of 16 specialty fields, such as surgery and obstetrics.

Licensure

The first State to pass a law to regulate the practice of osteopathy was Vermont, in 1896. All States now recognize and regulate the practice of the profession. The licensing examinations are given in 29 States and Hawaii by boards of osteopathic examiners; in other States and Puerto Rico by the medical examining boards, 15 of which include osteopathic physicians. A number of States and the District of Columbia grant licenses according to osteopathic physicians all privileges of physicians and surgeons; in 5 States the use of surgery is not included, and in 5 States the prescription or administration of drugs is not permitted.

Professional Organization

The American Association for the Advancement of Osteopathy was organized in 1897. In 1901 the name was changed to the American Osteopathic Association.

The American Osteopathic Association maintains an office of education which performs several func-

*Executive secretary, American Osteopathic Association; secretary, Bureau of Professional Education and Colleges of the association.

tions. It maintains a master file of interviews of prospective osteopathic students made by State student-selection committees and serves as a clearinghouse for applicants to all approved osteopathic colleges. It also compiles a master list of all students enrolled in the colleges and prepares guidance literature describing the osteopathic profession and its educational provisions. The director of the office visits representative colleges where students receive their preosteopathic education, assists in the inspection of osteopathic colleges, and performs numerous other educational functions. Additional educational activities are carried on by the association's Bureau of Professional Education and Colleges, which is described later. A Bureau of Hospitals concerns itself with osteopathic hospitals and the intern and residency training programs.

The association publishes *The Journal of the American Osteopathic Association* (monthly), *The Forum of Osteopathy* (monthly), *Osteopathic Magazine* (monthly), *Yearbook and Directory of Osteopathic Physicians* (annually), *Educational Standards for Osteopathic Colleges* (annually), *Minimum Requirements and Standards for Osteopathic Hospitals Approved for Intern Training and Residency Training* (annually), and an *Educational Supplement to the Journal of the American Osteopathic Association* (annual reprint of the January issue of the journal).

Colleges of Osteopathy

At present there are six colleges of osteopathy in the United States. Each is approved by the American Osteopathic Association.

In the year 1952–53 the colleges of osteopathy enrolled 1,917 students. (See table 1.) Between 1944 and 1952 the enrollment was almost doubled.

At the close of World War II the planned student capacity in the six colleges of osteopathy was 1,500. Gifts from members of the profession, by providing for new buildings, laboratories, training hospitals, and other larger teaching facilities, have made it possible for the colleges to accommodate a student body of 1,900.

Osteopathic college enrollment during the years 1945 and 1946 was the smallest since 1900. This was due to the influence of the period of World War II, during part of which time no deferment was granted by Selective Service to preosteopathic, premedical, and predental students. From the spring of 1944 until the end of the war, the only students entering osteopathic colleges were a small number of veterans and women, and men whow ere deferred by Selective Service.

During the period following World War II, applications for admission to colleges of the healing arts rapidly mounted. The peak was reached during the years 1948 to 1950. There were fewer applications filed and fewer individual applicants for the 1951 freshman classes in osteopathic colleges. The number of applications and individual applicants continued to show a slight decrease in the fall of 1952. It is expected that the number of applications will continue to show a small decrease until about 1957.

Table 1.—Students and graduates of osteopathic colleges in the United States, 1930–52

Year ending	Students	Graduates (calendar year)
1930	1,711	339
1940	1,590	428
1942	1,300	438
1943	1,105	356
1944	*970	351
1945	*724	*268
1946	*556	*226
1947	*821	*161
1948	1,217	*148
1949	1,523	*200
1950	1,778	374
1951	1,876	427
1952	1,928	426
1953	1,917	460
1953 (fall)	1,902	----

*World War II influence is reflected in these data.

The Auxiliary to the American Osteopathic Association in 1949 instituted a scholarship program. Five osteopathic scholarships of $1,000 each are awarded each year. They are applied to the tuition at the rate of $500 a year for the first 2 years in the osteopathic colleges where the scholars matriculate. The American Osteopathic Association maintains a substantial student loan fund available to juniors and seniors in osteopathic colleges.

Educational Organizations

An association representing eight osteopathic colleges was formed in June 1898, and representatives of osteopathic colleges have met at least once each year since then. Until 1901 the association, then known as the Associated Colleges of Osteopathy, by majority vote of the members adopted educational standards and in one instance suspended membership of one of the colleges for "irregular practice." The standardization and evaluation of osteopathic educa-

tion is now a function of another organization. The college organization is now known as the American Association of Osteopathic Colleges.

In 1947 the American Osteopathic Association formed a Council on Education to serve as a clearinghouse for all phases of osteopathic education. It is made up of persons representing various organizations of the osteopathic profession which deal with osteopathic education. The council meets annually.

Accreditation

The American Osteopathic Association in 1901 adopted a constitution which provided for a committee on education. The constitution also provided that the committee on education, together with the Executive Committee of the Associated Colleges of Osteopathy, should constitute a joint committee with power to investigate schools applying for membership in the college association, to investigate annually schools already members, and to report annually on these schools to the Board of Trustees of the American Osteopathic Association.

In 1907, the bylaws of the American Osteopathic Association provided further machinery for the inspection and approval of osteopathic colleges. Eventually, the committee on education became known as the Bureau of Professional Education and Colleges of the American Osteopathic Association.

The Board of Trustees of the American Osteopathic Association is the approving and accrediting agency for osteopathic education; it acts on the recommendations of its Bureau of Professional Education and Colleges. This approval system is recognized generally as the accrediting agency for colleges of osteopathy.

The Bureau of Professional Education and Colleges consists of 8 members of the American Osteopathic Association elected by the Board of Trustees. The membership is composed of the executive secretary of the association, 1 member from the Bureau of Hospitals, 1 from the Advisory Board for Osteopathic Specialists, 1 from the American Association of Osteopathic Colleges, and 4 others selected from the membership at large.

Preprofessional Education

The minimum requirements for admission to an approved college of osteopathy include 2 years (60 semester hours) of credit acquired in a college or university accredited by a regional or a national accrediting agency. The applicant must also present the following minimum credits: English, 6 semester hours (12 hours recommended); physics, 1 year; biology, 1 year; inorganic chemistry, 8 semester hours; organic chemistry, 4 to 8 semester hours.

The Bureau of Professional Education and Colleges recommends, and several osteopathic schools require, that preosteopathic students complete at least 3 years of college work. The students are urged to emphasize general education rather than to concentrate on a science major. Osteopathic colleges have as their first objective the education and training of a family physician, rather than graduating a specialist. A good cultural background in the preprofessional colleges is considered imperative in a doctor's education.

In 1951 and 1952, 70 percent of the entering freshmen in osteopathic colleges had bachelor's degrees. Of the entering freshmen, 2 percent were admitted with only the minimum of 60 semester hours of collegiate work.

A number of colleges of arts and sciences throughout the United States confer the baccalaureate degree upon their students who do satisfactory work for 3 years and then successfully complete their first year in an approved osteopathic college.

The number of specified credits required by the various osteopathic colleges ranges from 34 semester hours to 46, the latter generally necessitating more than 2 years of college work. The colleges also recommend that certain subjects be included among the electives. In some States the practice acts require that a foreign language be included.

The various osteopathic college admissions committees rely not only on the quantity and quality of preosteopathic training as furnished by the official college transcript and the interview with the applicant. They also give much weight to the excellent reports now being submitted by preprofessional colleges and by physicians in the field, who, in most cases, have followed the applicant's progress during his preprofessional training.

The 529 freshmen enrolled in the osteopathic colleges in 1952–53 came from 222 liberal arts colleges and universities.

Osteopathic Curriculum and Degree

The established purpose of the colleges of osteopathy was expressed in the corporate charter granted by the State of Missouri to the American School of Osteopathy in 1892: ". . . to improve our present system of surgery, midwifery (obstetrics) and treatment of disease generally and to place the same on a

more rational and scientific basis and to impart information to the medical profession and to grant and confer such honors and degrees as are usually granted and conferred by reputable medical colleges. . . ." An important aim of the osteopathic colleges is to preserve, emphasize, and extend in their teaching and research those values, principles, and precepts that distinguish the osteopathic philosophy and practice of the healing art.

A further aim of the colleges is to provide a full and complete curriculum of modern professional education, so that graduates shall be adequately trained and equipped as osteopathic physicians and surgeons, competent to cope with the problems of prevention, diagnosis, and treatment of disease generally.

Osteopathy stresses the importance of normal body mechanics to the health of an organism and emphasizes the use of manipulation to detect and correct faulty structure. All procedures of medical science, such as surgery, obstetrics, the use of drugs, physical therapy, and other diagnostic and therapeutic technics are embraced in osteopathic education. Succinctly, the main purposes of osteopathic education are the training of physicians and necessarily the training and education of students who can pass State licensing examinations. The educational process, as in other medical schools, is to some degree determined by widely varying demands in licensing laws.

The curriculum in an osteopathic college follows the plan of instruction generally recognized and accepted as standard in the education and training of physicians. The colleges being designated specifically for the training of osteopathic physicians emphasize those fundamental principles and procedures that are basic in the osteopathic school of practice.

The first 2 years are spent chiefly in the study of the basic sciences, osteopathic principles and technics, pharmacology, and the principles and methods of laboratory and physical diagnosis. A major portion of the time is spent in practical laboratory work in gross anatomy, histology, embryology, neuro-anatomy, biological chemistry, physiology, pharmacology, bacteriology, and pathology. Instruction in osteopathic principles and technics begins in the freshman year and is integrated throughout the whole curriculum.

Clinical instruction and training begin in the junior year. Instruction in therapeutics, the diagnosis of diseases in general, obstetrics, surgery, and the other specialties is presented by classroom lectures, laboratory demonstrations, and through clinical clerkships in the various clinics and hospitals, either owned by, or affiliated with, the colleges.

In the outpatient clinics, patients are assigned to the students for observation, study, and supervised history taking, physical and laboratory examination, and treatment. In the hospitals, the student clinical clerks receive training in general hospital routines and procedures. They observe and participate in delivery and operating technics and assist in and administer, under supervision, pre- and post-partum care of obstetrical patients and pre- and post-operative treatment of surgical cases. The clinical clerks receive instruction in anesthesia and observe and participate in the administration of anesthetics. They assist in or administer all forms of hospital care and treatment under the guidance and direction of the teaching members of the staff. Ward walks and presentation clinics are conducted by the various department heads and their associates. During the clinical years much emphasis is placed in the diagnostic clinics, where the upperclassmen start in as clinical clerks and then are trained in the diagnostic procedures.

All of the courses of study require the use of standardized medical and basic science textbooks, as well as the texts written by recognized osteopathic authorities.

Upon successful completion of the professional curriculum the student is awarded the degree of doctor of osteopathy, abbreviated as D. O.

Intern Training

Internships in osteopathic hospitals, approved as teaching hospitals, are of a minimum of 12 months' duration. In 1951–52, 98 percent of the graduates of osteopathic colleges entered intern training. In 1952–53, 76 osteopathic hospitals, approved for intern training and/or residency training, offered 475 internships. In December 1952, there were 432 osteopathic interns in training. The osteopathic internship is a continuation of the clinical educational program which starts during the latter part of the undergraduate course.

The American Osteopathic Association, acting upon the recommendation of its Bureau of Hospitals, is the approving agency of osteopathic hospitals to be placed on the registered hospital list or the list of approved teaching hospitals. The Bureau of Hospitals inspects and evaluates hospitals and makes recom-

mendations annually to the Board of Trustees of the American Osteopathic Association.

Specialty Training

Educational programs leading toward specialty certification require a 12 months' internship, followed by a minimum of 3 years' specialty training, which may be 3 years of residency, preceptorship or assistantship, or a combination thereof, followed by 2 years' specialty practice.

In 1952–53, 37 osteopathic hospitals were approved for 186 residencies in the specialty fields of internal medicine, obstetrics and gynecology, roentgenology, diagnostic roentgenology, radiology, surgery, pathology, anesthesiology, ophthalmology and otorhinolaryngology, orthopedic surgery, urological surgery, psychiatry, neurology, neuro-surgery, obstetrical-gynecological surgery, and pediatrics. Each residency is a full-time training program of at least 12 months' duration. All residencies are approved annually. Such residency programs may cover a period of 3 years.

The American Osteopathic Association has established 10 specialty certifying boards. Each board is authorized to evaluate the applicant's specialty training program and to conduct written, oral, and practical examinations to determine the applicant's qualifications in a given specialty. All activities of the certifying boards are reviewed by the Advisory Board for Osteopathic Specialists. The membership of the Advisory Board is made up of representatives from each certifying board, the Board of Trustees of the American Osteopathic Association, the Bureau of Professional Education and Colleges, the Bureau of Hospitals, and the American Association of Osteopathic Colleges.

The Board of Trustees of the American Osteopathic Association is the recognized certifying agency for all specialty certifications.

Postgraduate Study

All osteopathic colleges conduct postgraduate work or advanced study under three general divisions: general review courses, intensive specialized courses, and graduate study leading to specialization and certification. Some educational institutions outside the osteopathic profession also offer such work to osteopathic physicians. The Bureau of Professional Education and Colleges, through its Committee on Accreditation of Postgraduate Training, evaluates all graduate education except internships and residencies.

Research and Teaching Grants

The Bureau of Research of the American Osteopathic Association represents the Board of Trustees of the association in the management of grants which the association assigns to research in the osteopathic and related sciences, or to research fellowship training programs. It is the purpose of research under osteopathic auspices to create a constantly growing reservoir of basic knowledge regarding the human body and its frailties from which understanding may be derived, and to provide a basis for the development of the superior technics for the betterment of human health.

Osteopathic colleges are cooperating with the United States Public Health Service and the United States Navy, which for some years have granted funds for osteopathic research. All osteopathic colleges are cooperating with the Public Health Service in emphasizing cancer and heart teaching; for this purpose they have received teaching grants.

Financing Osteopathic Education

The financial problems of higher education in America are common knowledge. They are acute in the field of the healing art. The training of an osteopathic physician has become expensive. Although tuition has been markedly increased, it covers only about one-third of the over-all cost of the teaching program. Osteopathic college faculties have been expanded. Physical plants have been improved and expanded in order to incorporate into the teaching program the vast new fund of knowledge in both basic and clinical sciences.

Administrators of the osteopathic colleges met with the Board of Trustees of the American Osteopathic Association in 1942 for a thorough analysis and discussion of educational problems. Out of this meeting came the decision to create the Osteopathic Progress Fund to sustain and expand the osteopathic colleges. Osteopathic physicians contributed, during the years 1943 through 1945, a total of $1,500,000. The osteopathic colleges immediately began a program of construction and faculty expansion.

In January 1946 a new Osteopathic Progress Fund was initiated. A goal of $7,500,000 was agreed upon and campaign activities were integrated into the regular programs of all component State osteopathic societies. Intensive campaigns in many State organizations followed, until by February 1952 the osteopathic profession had raised, almost entirely from within its own ranks, an additional $2,900,000 in cash

and $2,000,000 more in pledges, which are currently being paid.

Having contributed and obligated itself for a total in excess of $6,000,000, the osteopathic profession has altered its objectives. It has established a continuing program designed to produce approximately $85,000 each month, from within its own ranks, for as long as the need exists. Efforts to date have achieved approximately 60 percent of this goal. The professional phase of the Osteopathic Progress Fund program will continue on a campaign basis until the monthly goal is achieved. It will be carried on after that on a sustaining basis to keep support from the profession at a maximum.

With such an excellent record in self-help the osteopathic profession now feels justified in looking to the American public for aid in meeting the financial needs of the colleges of osteopathic medicine. In view of the great contribution which osteopathic medicine is making to the public health, plus the fact that organized osteopathy is doing proportionately more than any other professional group to solve the financial problems of its colleges, it is believed that the public will respond. A modest beginning has been made in bringing the needs of osteopathic education before the public, and, since this program has been started, thousands of contributions have been received. These have been, almost entirely, small gifts from the patients of osteopathic physicians. Moderate-sized grants have been received from foundations and industrial organizations.

Osteopathic Colleges

The number following the name of the institution indicates the enrollment in the fall of 1953.

CALIFORNIA
College of Osteopathic Physicians and Surgeons, Los Angeles, 344

ILLINOIS
Chicago College of Osteopathy, Chicago, 220

IOWA
Des Moines Still College of Osteopathy and Surgery, Des Moines, 249

MISSOURI
Kansas City College of Osteopathy and Surgery, Kansas City, 366
Kirksville College of Osteopathy and Surgery, Kirksville, 344

PENNSYLVANIA
Philadelphia College of Osteopathy, Philadelphia, 379

Selected References

The Osteopathic Profession and its Colleges. Chicago, American Osteopathic Association, 1953. 30 p.

Educational Standards for Osteopathic Colleges. Chicago, American Osteopathic Association, Bureau of Professional Education and Colleges, 1953. 8 p.

Educational Supplement (Reprint) from the Journal of the American Osteopathic Association, January 1953. 18 p.

Guidance Leaflet—Osteopathy. Leaflet No. 23, U. S. Office of Education, Federal Security Agency. 11 p. Reprinted by the American Osteopathic Association, Chicago.

Fellowships for Eastern Study

THE FORD FOUNDATION is offering fellowships to younger American men and women (applicants should not ordinarily have passed their thirty-sixth birthday) who wish either to begin or continue study and research concerning Asia and the Near and Middle East. Students who will graduate from college next year are invited to apply as well as persons who have completed their formal educational training and have already initiated their careers.

Application forms may be obtained from the Ford Foundation Board on Overseas Training and Research, 575 Madison Avenue, New York 22, N. Y. Applications must be completed and returned on or before January 8, 1954. The awards will be announced on or about April 15, 1954.

Cost of Nursing Education

FIVE SCHOOLS OF NURSING in widely scattered sections of the country are participating in a National League for Nursing project to develop a method of determining the cost of basic nursing education programs in colleges and universities. A pilot study has already been made at Skidmore College, Saratoga Springs, N. Y. The other schools which will take part in the first phase of the project are the University of Washington School of Nursing, Seattle; Loretto Heights College Department of Nursing, Denver; University of California School of Nursing, Berkeley; and Emory University School of Nursing, Atlanta. Additional schools will be asked to participate in certain sections of the study at a later date. Although the study is being made in collegiate schools, the working and advisory committees believe that methods which are worked out may also be applicable to hospital schools.

NEW PUBLICATIONS

Government Publications

How To Obtain

(1) *Cost Publications: Send request, enclosing remittance (check or money order), to the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.*

(2) *Free Publications: Request direct from the agency issuing them.*

From the Office of Education

Home, School, and Community Experiences in the Homemaking Program. Washington, U. S. Government Printing Office, 1953. Vocational Div. Bulletin No. 252. Home Economics Education Series No. 29. 69 p. 25 cents.

How Children Learn To Write, by Helen K. Mackintosh and Wilhelmina Hill. Washington, U. S. Government Printing Office, 1953. Bulletin 1953, No. 2. 24 p. 15 cents.

Literacy Education: National Statistics and Other Related Data, by Ambrose Caliver. Washington, U. S. Government Printing Office, 1953. Circular No. 376, June 1953. 16 p. 15 cents.

Mathematics in Public High Schools, by Kenneth E. Brown. Washington, U. S. Government Printing Office, 1953. Bulletin 1953, No. 5. 47 p. 20 cents.

The Operation of a Local Program of Trade and Industrial Education: with emphasis on improving instruction through supervision, by William P. Loomis. Washington, U. S. Government Printing Office, 1953. Vocational Division Bulletin No. 250, Trade and Industrial Series No. 62. 166 p. 45 cents.

Selected Characteristics of Reorganized School Districts, by C. O. Fitzwater. Washington, U. S. Government Printing Office, 1953. Bulletin 1953, No. 3. 49 p. 20 cents.

The State Department of Education Report, by Robert F. Will. Washington, 1953. 58 p. Proc.

From Other Government Agencies

U. S. Department of Health, Education, and Welfare, Public Health Service. *Health Manpower Source Book: Section 2, Nursing Personnel*, by Helen G. Tibbitts and Eugene Levine. Washington, U. S. Government Printing Office, 1953. Public Health Service Publication No. 263. 88 p. Proc. 40 cents.

———. *Report on Schools of Public Health in the United States*, by Leonard S. Rosenfeld, Marjorie Gooch, and Oscar H. Levine. Washington, U. S. Government Printing Office, 1953. Public Health Service Publication No. 276. 110 p. 35 cents.

U. S. Department of Labor, Women's Bureau. *The Outlook for Women in Professional Nursing Occupations.* Washington, U. S. Government Printing Office, 1953. Bulletin of the Women's Bureau No. 203–3, Revised, Medical Service Series. 80 p. 30 cents.

U. S. Government Printing Office, Superintendent of Documents. *Government Periodicals*, Price List 36, 69th Edition, February 1953. Washington, U. S. Government Printing Office, 1953. P. L. 36. 14 p.

Non-Government Publications

Obtain direct from the publishers. Prices are indicated when known.

Applications to the Professional Schools and Colleges: For the fall term 1952, Medicine, Osteopathy, Dentistry, Veterinary Medicine, Pharmacy, Optometry, Law, Social Administration, by William S. Guthrie. Columbus 10, Ohio, the College of Arts and Sciences of The Ohio State University, 1953. 71 p.

Association of Urban Universities *Proceedings of the Thirty-eighth Annual Meeting*, 1952. Detroit, Mich., Wayne University. 95 p. Proc. Free copies from Mrs. Doris Lusk, Assistant Secretary of the Association, at Wayne University.

Bridging the Gap Between School and College: Evaluation Report No. 1. 575 Madison Ave., New York 22, The Fund for the Advancement of Education, 1953. 127 p.

A progress report on four related projects supported by the Fund for the Advancement of Education: The school and college study of general education, a public school program for students of exceptional endowment, the school and college study of admission with advanced standing, and the program for early admission to college.

Carnegie Corporation of New York *Annual Report*, 1952. New York 36, 522 Fifth Ave., 1953. 82 p.

UNITED STATES
GOVERNMENT PRINTING OFFICE
DIVISION OF PUBLIC DOCUMENTS
WASHINGTON 25, D. C.

OFFICIAL BUSINESS

If you do not desire to continue receiving this publication, please CHECK HERE ☐; tear off this label and return it to the address at the left. Your name will then be promptly removed from the appropriate mailing list.

PENALTY FOR PRIVATE USE TO AVOID PAYMENT OF POSTAGE, $300 (GPO)

Construction of Educational and Personnel Tests, by Kenneth L. Bean. New York 36, McGraw-Hill Book Co. 1953. 231 p. $4.50.

Shows how to construct aptitude and achievement tests in all subject matter fields; written tests of knowledge and various abilities and performance tests of skill. A practical treatise; seeks to overcome the problem arising from a lack of specialized training on the part of college and university instructors in the preparation of examinations.

Current Issues in Higher Education 1953, Francis H. Horn, *ed.* 1201 16th St. NW., Washington 6, D. C., Association for Higher Education, 1953. 292 p.

Proceedings of the 8th Annual National Conference on Higher Education, Chicago, Ill., March 5–7, 1953. Contains 15 addresses, the analysts' statements, discussion group reports, and conference resolutions.

Estimating College Age Population Trends 1940–1970, by Ronald B. Thompson. Columbus 10, Ohio, The Ohio State University, 1953. 68 p. Proc.

An analysis of college-age population trends intended to assist those who plan for the future of higher education.

General Education Board Annual Report 1952. 49 West 49th St., New York, The Board, 1953. 86 p.

Hebrew for College Entrance, Judah Lapson, *ed.* 1776 Broadway, New York 19, The Hebrew Culture Service Committee for American High Schools and Colleges, 1953. 78 p.

A directory of colleges and universities in the United States which accept Hebrew for admission.

Medical Schools in the United States at Mid-Century, by John E. Deitrich and Robert C. Berson. New York 36, McGraw-Hill Book Co., 1953. 380 p. $4.50.

The formal report of the Survey of Medical Education, organized in 1947. The main topics dealt with are: The education, research, and service functions of the medical school; the finances of the medical school; the operation of the medical school, including administration, hospital relations, departments, library, faculty, and admissions; the curriculum and teaching methods; and advanced education and training. The survey was made under the sponsorship of the American Medical Association and the Association of American Medical Colleges.

Toward a Regional Program of Psychological Research and Training in the South. 830 West Peachtree St. NW., Atlanta, Ga., Southern Regional Education Board, 1953. 97 p.

A collection of documents growing out of a conference of 105 psychologists, psychiatrists, and social workers at Emory University in January 1953, and several subsequent meetings.

University Extension in the United States, by John R. Morton. University, Ala., University of Alabama Press, 1953. 144 p. Paper, $1. Cloth, $2.25.

Report of a study by the National University Extension Association, made with the assistance of a grant from the Fund for Adult Education; reports on the origins and development of university extension; its functions and administrative arrangements, facilities used, staffs, users, financing, principal subject areas, and methods of development and instruction in the universities holding membership in the association.

W. K. Kellogg Foundation *Annual Report 1951-52.* Battle Creek, Mich., The Foundation, 1953. 154 p.

HIGHER EDUCATION

Published monthly from September through May. Its printing was approved by the Bureau of the Budget on August 27, 1953, as required by Rule 42 of the Joint Committee on Printing.

MANAGING COMMITTEE

Lloyd E. Blauch, Chairman

Jennings B. Sanders

Publication Office: Office of Education U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE • • • WASHINGTON 25, D. C.

Subscription: In advance, $1 a year (10 cents a single copy), to foreign countries, $1.50. For orders of 100 copies or more in bulk to one address within the United States, 25 percent discount is allowed. Send remittance to the Superintendent of Documents, Government Printing Office, Washington 25, D. C.

OVETA CULP HOBBY, Secretary of Health, Education, and Welfare.

SAMUEL MILLER BROWNELL, Commissioner of Education

W. EARL ARMSTRONG, Acting Head, Division of Higher Education

U. S. GOVERNMENT PRINTING OFFICE: 1953